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ABSTRACT

Information about good practice in classroom teaching is needed to inform educational planners and practitioners of the development and improvement of curricula and teaching and as a resource for further curriculum reform. This paper, part of a study on teacher effectiveness, reports on classroom research in a Malaysian secondary school 4 years after the implementation of the Integrated Secondary School Curriculum (ISSC), a planned educational innovation. The practices of 16 secondary school mathematics teachers were identified as effective through systematic classroom observations. Findings indicate there exists little evidence, even from the practice of effective teachers themselves, to support the claims about the practices of effective teachers as prescribed by the ISSC, although retraining of teachers had taken place prior to implementation of the curriculum. Since teachers develop their own sustainable approach towards good practice, it was argued that effort had to be made to reduce the mismatch between what ought to be prescribed by the curriculum and what ought to be practiced by the teachers, particularly on how beliefs about good practices should be developed and then carried out effectively by the teachers in the classroom. (Contains 28 references.) (LL)

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In Search of Good Practice: Learning from the Effective Teachers in Malaysia

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ABSTRACT

Information about good practice in classroom teaching is needed to inform educational planners and practitioners of the development and improvement of curricula and teaching. Good practice also might offer a resource for further curriculum reform such as the Integrated Secondary School Curriculum (ISSC) in Malaysia. This paper reports a research on classroom teaching four years after the implementation of the ISSC. It considers some of the practices of 16 mathematics teachers of 12-13 year-old students who are identified as effective through systematic observation. It was striking to find that there exists little evidence, even from the practice of effective teachers themselves, to support the claims about the practices of effective teachers as prescribed by the ISSC, although retraining of teachers had taken place prior to the implementation of the ISSC. Since teachers have already developed their own sustainable approach towards good practice, it was argued that effort had to be made to reduce the mismatch between what ought to be prescribed by the curriculum and what ought to be practised by the teachers, particularly on how beliefs about good practices should be developed and then carried out effectively by the teachers in the classroom.

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In Search of Good Practice: Learning from the Effective Teachers in Malaysia

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Introduction

Educational innovations are being constantly introduced to solve problems and improve existing practice as well as to raise educational standards. Over the years, evidence suggests that the success of educational innovation in the classroom is associated with the schools (e.g. Mortimore *et al.* 1988), school's departments (e.g. Smith & Tomlinson 1989), and teachers (e.g. Leithwood 1982; Fullan & Hargreaves 1992). There is also indication that continuous efforts have been made to consider professional knowledge in teacher development (e.g. Leithwood 1992; McNamara & Slingsby 1993). However, with the increasing reality of imposed innovation in many countries (Unesco 1986), teachers have, to some extent, been neglected and their participation in the development and dissemination of most planned educational change has been underestimated.

Whereas theory and practice could be used to guide the development and dissemination of planned change, the lack of research findings in the Third World countries that deal with the unique local situation tends to increase reliance on foreign educational concepts in the planning and implementation of such innovations. As the failure to take into account the career situations and cultures of the teachers affected will add injury to the innovation (Sikes 1992), there is a need to consider how teachers implement the innovation in their classroom teaching in such a situation.

One example of recently planned educational innovation is the introduction of the Integrated Secondary School Curriculum (ISSC) in Malaysia. This paper, as part of a study on teacher effectiveness, reports a research on classroom teaching in the secondary school four years after the implementation of the ISSC.

Paper prepared for British Educational Research Annual Conference, The University of Liverpool. September 10th-13th 1993.
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It considers some of the practices of 16 mathematics teachers of Form One students (12 to 13-year-old) who were identified as effective in mathematics teaching. The report begins with the purpose of the study, then the design, followed by some results of classroom observations, and lastly comes a discussion of these findings.

The Purpose of the Study

The implementation of the ISSC in 1988, together with the New Primary School Curriculum (NPSC) which was launched in 1982, was driven by the need to achieve the aims of the new National Educational Philosophy (NEP) whereby education in Malaysia is intended not only to equip individuals with the appropriate knowledge and skills, but also to produce responsible citizens with strong moral and ethical values.

Its implementation, claims the Ministry of Education (MoE 1990a), has had an effect not only on secondary school teachers and their classroom teaching, but also on their professional development. The existing pre-service teacher education programme had to be revised and tailored to train a new breed of teachers. However, the most crucial and much publicized effect of the ISSC is said to be on the lives and professional development of existing secondary school teachers, especially when its directives made claims on how to be an effective teacher in terms of delivering the new curriculum in the classroom.

Prior to the implementation of the ISSC, the Ministry had developed in-service training programmes to retrain more than 72,000 existing secondary school teachers (MoE 1992). These programmes were mainly concerned with the curricular and procedural knowledge of the ISSC teaching. Several such courses have been conducted at the national, state and district levels, and intensive training has been organised and carried out at the school level. To facilitate these training sessions, in-service training kits were produced mainly in the form of printed material and videos.

One such publication, for example, a module of the National Educational Philosophy (MoE 1990a) which contains a guide of appropriate teaching and learning styles for the ISSC, made a claim that the effectiveness of teaching and learning in the secondary school classroom is dependent on the teaching and learning styles being practised by the teacher. Chapter 5 (pp. 37-58) of the module suggested that teachers should use more student-centred rather than teacher-centred strategies. The module also recommended that effective teachers of the ISSC should;

1. Improve the quality of her/his questions not only by emphasizing on the questions which require a low cognitive demand such as memorization of the facts, but also those questions which require a high cognitive demand such as reasoning,

2. Stimulate student questions, not only student questions directed to the teacher but also student questions directed to other fellow students,

3. Reduce the amount of time of teacher talk, and subsequently increase the amount of student talk.

Obviously, it is preferable for those in-service programmes and materials to reflect good practice as identified by educational research. However, this has been lacking to date. Four years after its inception, little, if anything, is known on how secondary school teachers implemented the ISSC in their classroom teaching. Did the teachers follow what has been prescribed in the ISSC modules effectively? Did the teachers adjust their teaching, particularly the procedural knowledge, to fulfill the requirement of the ISSC? Were the teachers able to exhibit good practices in implementing the ISSC? As regards to secondary school teaching, the ISSC modules remain the most authoritative prescriptive documents on hand for teachers.

Information about good practices especially from the expert teachers in classroom teaching (e.g. Hyland 1993; Tobin & Fraser 1991) is needed to inform us of the development and improvement of curricula and teaching, particularly for the young national curricula such as the ISSC. Good practice also might provide a model to be emulated by novices, an input to be used to help less effective teachers to implement the ISSC and it can also offer a resource for further curriculum reform (Knight & Smith 1989). This approach of seeking good practice has currently been in the forefront of research in the study of teacher effectiveness and effective teaching (e.g. Galton 1991; Knight 1991; Ornstein 1991).

Design

The study has been carried out with the proposition that the dynamics of teacher's teaching can be explained by eliciting information from close analysis of inter-relationships between three main domains of classroom processes, namely teachers' perceptions, strategies and behaviour; students' perceptions, strategies and behaviour; and characteristics of the learning task and activities (e.g. Kyriacou 1986). The inter-relationships between these three domains can be elicited by observing the classroom practice of teachers.

One way of eliciting these inter-relationships is to focus the study on classroom interaction, particularly teacher-student interaction and the quality of student involvement in this interaction by concentrating on the individual teacher and his/her respective students.

Instrument

The study employed a systematic observation system. The teacher and student records were used to collect the data. These instruments were based on the Galton *et al.* (1980) study. The data were gathered from 58 lessons of teachers' classroom teaching, involving 16 different classrooms. In each lesson, the teacher was observed using teacher record with 25 observation episodes of 25-seconds time- sampling unit. A total time of 10.42 minutes was recorded for each teacher in each lesson resulting in a total of 1,450 episodes with a total time of 604.36 minutes for observing all teachers.

Each target student was observed for six episodes of 25-seconds using the student record which focuses on the student's activities and interactions with other students and teacher, resulting in 36 episodes for all six students with a total time of 15 minutes in each lesson. This brought a total of 2,088 observation episodes with a total time of 870 minutes for observing all respective students.

Subject

Since education in Malaysia is a centralised system in nature, one district's educational administration was selected as representative of the Malaysian system as a whole. All teachers who teach mathematics in the district's 12 secondary schools were assessed by their respective principal, assistant principal and head of the mathematics department. Each school authority was asked to nominate, if any, the most effective Form One mathematics teacher. To check consistency of his/her effectiveness, the name submitted was then compared with the record of effective teachers which is compiled from time to time by the district educational office. Sixteen effective teachers whose names appeared in both the nomination and the record were studied.

Ten male and 6 female effective teachers were studied. Their average age was 36 years old. They had a range of teaching experiences of between 7 to 23 years with an average mean of 13 years. All teachers had attended teacher training colleges and all had majored in mathematics teaching.

Six target students in each participating teacher's class were identified according to their achievement in their latest semester examination result. These six students, two representatives for each group were selected at random according to the high, medium and low percentiles in the results for each class. Although each teacher supplied the names of students in his/her class, together with their respective results and location in the class, the teacher was not informed about the selected target students.

Results

a. Teacher activity in the classroom

The effective teachers spent almost all (93.1 per cent) of their time interacting with their students (Table 1). Conversation occupied most of this interaction (72.4 per cent). Such conversation was in the form of statements (38.8 per cent) and questions (28.6 per cent). Silent interaction such as gesturing, showing, marking and waiting occupied 25.7 per cent, while no interaction with students took up only the rest of their time (6.9 per cent).

Since the ISSC demands a teaching style which has much in common with claims about good, English primary practice, this result, however, is in contrast with the British study of teachers in the primary classroom (8 to 10-year-old students) by Galton *et al.* (1980) in which the teachers spent their classroom time in questioning (12.0 per cent), making statements (44.7 per cent), making silent interaction (22.3 per cent) and making no interaction with students (21.0 per cent). Although students' age might explain these differences, contribution of cultural differences between the two countries can not be neglected.

Further analysis of teacher's activity indicated that the major type of teachers' statements was feedback on work or effort of students, while questions asked were mainly referring to the task supervision. It seemed to indicate that much of effective teachers' activity in the classroom was devoted to maintaining the attention of students on the task.

It was also clear that there existed more open questions, including questions which stimulated reasoning answers (28.7 per cent of the total questions) compared to questions about the fact (7 per cent). This result appears to support the prescription of the ISSC modules that effective teachers should improve the quality of her/his questions not only by emphasizing on the questions about the fact, but also by increasing the proportion of questions that require a high level of cognitive demand.

Table 1: Teacher activity in the classroom

Activity	Percentage of all observations	Percentage in each major activity
A. *Making statements*		
Task:		
1. Of facts	6.8	17.4
2. Of ideas, problems	3.4	8.7
Task supervision:		
3. Telling the student what to do	6.6	17.0
4. Praising work or effort	6.8	17.6
5. Feedback on work or effort	11.7	30.4
Routine:		
6. Routine information	1.9	4.8
7. Routine feedback	.8	2.0
8. Critical control	.6	1.6
9. Of small talk	.2	0.5
Sub-total	38.8	100.0
B. *Questioning*		
Task:		
1. Of fact	2.0	7.0
2. Closed questions	6.3	21.9
3. Open questions	8.2	28.7
Referring to task supervision:	11.4	40.0
Referring to routine matters:	.7	2.4
Sub-total	28.6	100.0
C. *Other interactions*		
1. Gesturing	8.6	33.3
2. Showing	7.9	30.9
3. Marking	4.8	18.5
4. Waiting	4.2	16.4
5. Story-telling	.1	.5
6. Reading	.1	.4
Sub-total	25.7	100.0
D. *No student-teacher interaction*		
1. Visiting pupil	.6	8.1
2. Not interacting	5.5	80.8
3. Out of room	.8	11.1
Sub-total	6.9	100.0
TOTAL	100.0	

b. Forms of teacher-student interaction

Although it is evident that teachers spent most of their time making contacts, in contrast, students made little contact with teachers. This pattern is quite common in the United Kingdom. Table 2 indicated that while the teacher played an active role, students remained passive. This implies that the recommended prescription of the ISSC i.e., that effective teachers should reduce the amount of time of teacher talk, and subsequently increase the amount of student talk is far from reality.

Table 2: Forms of teacher-student interaction

Teacher interacts with:	Student Record	Teacher Record
Individuals	1.1	15.0
Groups	.1	9.0
Whole class	.5	69.1
Total interaction	1.7	93.1
No interaction	98.3	6.9
Total	100.0	100.0

While teacher record presented in Table 2 revealed that teachers communicate more than two-thirds of their classroom time to the whole class, the student record, however, showed that almost two-thirds of the student's interaction with the teacher was as an individual. This result is also in contrast with the British study whereby the great majority of teacher's contacts were with individual students, while the bulk of student's interaction with the teacher was as a member of the whole class (Galton *et al.* 1980). This suggests that these teachers need to improve their student-centred strategy if they want to enhance their teaching parallel to what has been prescribed in the ISSC modules. If this is not happening, even from the practice of effective teachers themselves, it is argued that the prescription with respect to student-centred strategies in the modules is contested.

c. Student activity in the classroom

The results of students' activity gathered from the student record presented in Table 3 showed that two types of student' involvement were obvious. First, the students' spent the bulk of their time mainly involved in working on their own tasks such as reading, writing,

calculating, and so on. Second, at other times, they were usually interested in the teachers' activity such as observing what the teachers were doing and listening to what the teachers said. Since the teacher played an active role through maintaining the attention of students on the task, as discussed above, it can be implied that the effective teachers' classroom teaching have low level of students' distraction.

Table 3: Students' activity in the classroom

Activity	Percentage of all observations
On task related:	
Fully involved on task	43.2
Fully involved on routine	.2
On non-task related:	
Totally distracted	2.0
Distracted by observer	.2
Disrupting other pupils	0
Horseplay with others	.1
Other involvement:	
Partial involvement	4.2
Waiting to interact with teacher	1.0
Interested in teacher's activity (such as observing and listening)	37.4
Interested in the work of others	6.8
Involvement in non-approved work	1.5
Responding to internal stimuli	1.1
Not observed for some reason	2.3
Total	100.0

d. Student-student(s) interaction

Students spent little time interacting among themselves, as revealed by Table 4. It appears that students in the effective teachers' classroom asked few questions, not only questions directed to the teachers which is shown in Table 2 above, but also student's questions directed to other fellow students, thus, indicating that what has been prescribed by the ISSC with regards to student-student interaction was lacking in the classroom teaching.

Furthermore, when they did interact on a person to person basis, they interacted mostly with the same sex. From observation, this pattern might be influenced by the students' grouping arrangement in the classroom whereby the majority of students' seating were pre-arranged in pairs of the same sex.

Table 4: Forms of student-student interaction

Interaction	Percentage of all observations	Percentage of all interaction
Same sex	6.8	83.4
Opposite sex	.6	7.1
Several, same sex	.7	8.9
Several, opposite sex	.1	0.6
Total	8.1	100.0

Points for Reflection

What can we learn from the practices of effective Malaysian teachers of mathematics? Four years after the implementation of the ISSC, the findings suggested that the teachers followed only some of the prescriptions of the ISSC, such as those with regard to the types of questions and maintaining the engagement of students on the task. However, it is astonishing to discover that there is little evidence, even from the practice of effective teachers themselves, that the teaching and learning process underlying the ISSC curriculum which takes the form of transforming knowledge, skills and values are being implemented; nor, that the ISSC was considered as giving new status to the pupils as the key players, and the teacher as counsellor; let alone that the students were becoming an active factor, whereas the teacher was being the motivator and source of stimulus, a mover of teaching and learning, as claimed by the Ministry (MoE 1990a; MoE 1990b).

Teachers had little involvement in the development and dissemination of educational innovations such as the ISSC. Their participation is mainly at the implementation stage. While their involvement at the earlier stage of innovation is reported to have some disadvantages (Fullan & Pomfret 1977), without it, the genuine intention of the innovation will disperse along the drain of educational bureaucracy and the "new" content of such an innovation is subject to variations of interpretation before it reaches the teacher. As the implementation becomes more complicated, the more the innovation is opened to interpretation, and the more fragile is the business of innovation.

The early involvement of teachers is also necessary to inject current professional knowledge in the development of innovation especially since the existing affected teachers have already developed their own

sustainable approach towards good practice which are hard to change. Quite often, any attempt to introduce educational change might be seen as a disturbance. The unfamiliar "new" content of innovation might involve diskilling of their existing practices (Vulliamy & Webb 1991). The failure to implement the innovation successfully has the tremendous effect of "guilt and frustration at not being able to meet the standards" (Fullan & Hargreaves 1992, p. 6). Faced with the "unrealistic" innovation, they have to make an appropriate professional decision, often based on their beliefs about good practice in such a situation (Knight & Smith 1989).

Criticism of teachers who fail to make the changes is evident in the case of the ISSC. The evidence of this study tends to support that claim. The Government has been concerned recently with what it sees as the failure of the new education system, and the teachers within it, to deliver what is required. The Minister of Education even accused teachers of too much emphasis on rote learning (Sulaiman 1991).

Although it has been claimed by the Ministry that the development of the ISSC was based on Malaysian needs and on her national development goals (MoE 1990a; MoE 1990b), however, the Government has relied on the research findings that have been done in other countries, mainly from the West. Much of the conceptual "apparatus" of the new curriculum such as student-centred learning (which is based on the Plowden Report (1967)), is foreign to the Malaysian educational establishment. Even the concept of Malay language across curriculum, which is considered "vital" for the success of the ISSC is based on the Bullock Report (MoE 1990b). Conducting a lesson that involves inquiry and/or discovery processes such as discussions usually tends to result in a noisy atmosphere which is seldom tolerated in the school institution since this has always been not only associated with pupils not learning but also against the culture of the society whereby students are expected to be quiet and obey the teacher's instruction as a show of respect. Furthermore, the seeds in putting value on paper certificates have already been planted in the society.

Even though imposed change has potential value of addressing issues such as equity (Sikes 1992), the social contexts in which learning and teaching take place should be taken into account in educational innovation. Vulliamy (1987) reminds us of the limitations of the conceptualization of effectiveness to be found in much of the literature to date. Although the levels of resourcing and physical facilities and teacher characteristics are reported to be unrelated to student achievement in the West (Anderson *et al.* 1989), Vulliamy argued that this does not seem to be the case in the Third World context.

Since the implementation of the ISSC is underway, how should we implement effectively a policy which is, in practice, being rejected and subverted? One might say that an alternative is to abandon the ISSC ideals and adopt a more limited set of goals based upon the more conservative, teacher-defined view of good practice. However, this is very unlikely, at least at present, because not all elements of the ISSC is unusable. Another possibility is to improve the situation especially through teacher development. As suggested by the Minister (Sulaiman 1991), teacher education must do a better job in identifying the kind of professional knowledge, skills and values that are necessary in preparing teachers to work in different contexts. There is certainly a need to consider the existing teachers' professional knowledge and their beliefs about the notion of good practice in the designing and implementation of in-service teacher education programmes.

As the best way to improve teaching practice lies not so much in trying to control teachers' behaviour as in helping them to control their own behaviour by becoming more aware of what they are doing (Elliot, in Day 1993), teachers' existing knowledge, beliefs and practice and the contexts in which they occur should be "scrutinized" and "supported". In-service teacher education should be designed, as echoed by Calderhead and Robson (1991), to cater for the different well-fixed images of teaching that teachers already have which affect what they get from their courses. This model of developing in-service teacher education is consistent with the idea of reflective practice (Schon 1983) and the idea of responsibility through partnership and coalition (Day 1993).

REFERENCES

Anderson, L., Ryan, D. & Shapiro, B. (1989) *The IEA Classroom Environment Study*. Oxford: Pergamon Press.

Calderhead, J. & Robson, M. (1991) Images of teaching. *Teaching and Teacher Education*, 7(1): 1-8.

Day, C. (1993) Reflection: a necessary but not sufficient condition for professional development. *British Educational Research Journal* 19(1): 83-93.

Fullan, M. & Hargreaves, A. (1992). Teacher development and educational change. In M. Fullan and A. Hargreaves (eds.) *Teacher Development and Educational Change*. London: Falmer

Fullan, M & Pomfret, A. (1977). Research on curriculum and instruction implementation. *Review of Educational Research*, 5(47): 335-397.

Galton, M. (1991) Studying teachers and teaching. *Teaching and Teacher Education*, 7(1): 111-114.

Galton, M., Simon, B., & Croll, P. (1980) *Inside the Primary Classroom*. London: Routledge.

Hyland, T. (1993) Training, competence and expertise in teacher education. *Journal of Teacher Development*, 2(2): 117-122.

Knight, P. (1991) Teaching as exposure: the case of good practice in junior school history. *British Educational Research Journal*, 17(2): 129-140.

Knight, P. & Smith, L. (1989) In search of good practice. *Curriculum Studies*, 21(5): 427-440.

Kyriacou, C. (1986) *Effective Teaching in Schools*. Oxford: Basil Blackwell.

Leithwood, K. (1992) The principal's role in teacher development. In M. Fullan and A. Hargreaves (eds.) *Teacher Development and Educational Change*. London: Falmer.

Leithwood, K. (1982) Implementing curriculum innovations. In K. Leithwood (ed.) *Studies in Curriculum Decision Making*. Ontario: The Ontario Institute for Studies in Education.

McNamara, D. & Salingsby, K. (1993) Acquiring and codifying teachers' professional expertise: an aspect of the home-school liaison teacher's role. *Educational Studies*, 19(2): 219-226.

Ministry of Education, Malaysia (1992) *Educational Statistics 1990*. Kuala Lumpur: Dewan Bahasa dan Pustaka.

Ministry of Education, Malaysia (1990a) *Module for the Integrated Secondary School Curriculum Training: National Educational Philosophy*. Kuala Lumpur: Dewan Bahasa dan Pustaka.

Ministry of Education, Malaysia (1990b) *Module for the Integrated Secondary School Curriculum Training*. Kuala Lumpur: Dewan Bahasa dan Pustaka.

Mortimore, P. *et al*. (1988) *School Matters: The Junior Years*. Wells: Open Book.

Ornstein, A. (1991) Teacher effectiveness research: theoretical considerations. In H. Waxman and H. Walberg (eds.) *Effective Teaching: Current Research*. Berkeley: McCutchan, pp. 63-80.

Plowden Report (1967) *Children and Their Primary Schools* (2 vols), Report of the Central Advisory Council for Education in England, HMSO, London.

Schon, D. A. (1983) *The Reflective Practitioner: How Professionals Think in Action*. New York: Basic Books.

Sikes, P. (1992) Imposed change and the experienced teacher. In M. Fullan and A. Hargreaves (eds.) *Teacher Development and Educational Change*. London: Falmer.

Smith, D. & Tomlinson, S. (1989) *The School Effect: A Study of Multi-Racial Comprehensives*. London: Policy Studies Institute.

Sulaiman, D. (1991). Opening address. *Regional Seminar on Teacher Education: The Challenges of the 21st Century*. Penang: Universiti Sains Malaysia.

Tobin, K. & Fraser, B. (1991) Learning from exemplary teachers. In H. Waxman and H. Walberg (eds.) *Effective Teaching: Current Research*. Berkeley: McCutchan, pp. 217-236.

Unesco (I.B.E) *Primary Education on the Threshold of the Twenty First Century, International Yearbook of Education*, Vol. XXXVIII. Paris: Unesco.

Vulliamy, G. & Webb, R. (1991) Teacher research and educational change: an empirical study. *British Educational Research Journal* 17(3): 219-236.

Vulliamy, G. (1987) School effectiveness research in Papua New Guinea. *Comparative Education* 23(2): 209-223.